



Washington State Ballast Water Treatment Technology Forum

Crowley Maritime Corporation
An Industry Perspective
May 14, 2003





Crowley Maritime Corporation

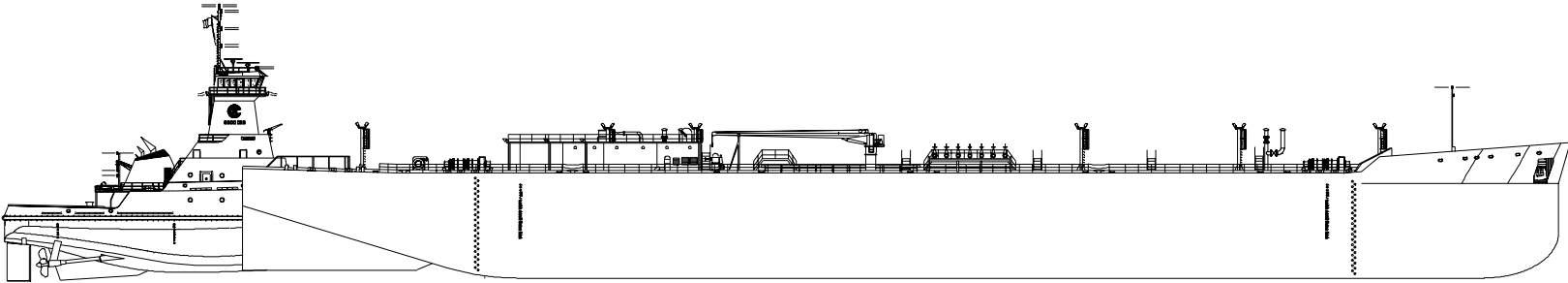
- **Founded 1892 in San Francisco Bay by Thomas Crowley.**
- **Crowley Companies:**
 - **Crowley Marine Services**
 - **Crowley Liner Services**
 - **Crowley Logistics**
 - **Marine Transport Corporation**
 - **Vessel Management Services**
- **Privately owned and operated.**
- **Over 4000 employees and over 40 offices and port locations world wide.**
- **More than 220 tugs, barges, and ships.**

Crowley Articulated Tug Barge



- **ATB – Articulated Tug & Barge**
- **An all weather capable, performance oriented tug/barge system**
- **The tug is locked in and rolls with the barge motion but is free to pitch independent of the barge motion**
- **Barge is unmanned at sea**

New Build 155 kbbbls ATBs



Tug Specs

- LOA: 126' 9"
- Beam: 42'
- Depth: 22' 1"
- Draft: 19'
- Gross Tons: under 300
- Fuel Capacity: 160,000 gal
- Speed: 12 kts
- Twin low emission Caterpillar 3612 B electronically controlled engines at 4,640 BHP each

Barge Specs

- LOA Barge: 512'
- LOA (coupled): 605'
- Beam: 78'
- Depth: 40'
- Draft: 27' 6"
- DWT: 19,683 LT
- Cargo Cap: 155,000 bbls @ 95%
- 12 Cargo Tanks (min 12,500 bbls each)
- 4 Cargo Pumps 5,000 BPH

Ballast Water Management



International Ballast Water Management

International Maritime Organization (IMO) *Guidelines for the Control and Management of Ship's Ballast Water to Minimize the Transfer of harmful Aquatic Organisms and Pathogens*

- Minimize ballast water and sediments uptake
- Remove ballast tanks sediment
- Avoid unnecessary discharge of ballast water
- Ballast water exchange
- Non or minimal release of ballast water
- Emergent and new technologies and treatments

IMO Marine Environment Protection Committee *Draft International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004*

U.S. Federal Ballast Water Management

**U.S. Coast Guard voluntary ballast water management guidelines
July 1999**

**Coast Guard Ballast Water Management final rule December 2001
requiring ballast water management reports for all vessels
entering U.S. waters from outside exclusive economic zone**

**Mandatory ballast water management reporting program, summer
2004**

**Standard to evaluate proposed technologies proposed rule, winter
2003 with final rule fall, 2004**

Crowley ATB Ballast Water Treatment



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Crowley is actively reviewing new ballast water treatment technologies for use on the ATBs.

Ballast water treatment issues are:

- Absence of standards to evaluate proposed technologies
- Nationwide consistency with international standards
- Treatment effectiveness
- Crew safety and health
- Discharge standards and permits
- Impact to vessel operations, tanks and machinery

Ballast Water Treatment Technology Review Underway

- Chlorine Dioxide
- Electrolysis & ionized air
- Ozone
- Oxygen stripping

